

single genus *Zorotypus* containing three species, *guineensis* from Africa, *ceylonicus* from Ceylon and *javanicus* from Java. Excellent figures showing the general appearance and details of these interesting insects are given by the describer. Later* the same writer described a new species from the New World, *Z. neotropicus* from Costa Rica. Melander and Brues, Key to the Families of North American Insects, Plate 2, Fig. 26, copy one of Silvestri's figures showing the general appearance of *Zorotypus*.

Silvestri compares the Zoraptera with the Isoptera and with the Blattidæ and mentions the Dermaptera in this relation, but did not seem to consider any possible relationship with the Psocidæ. Thus it seems somewhat odd that they should have been considered psocids by Mr. Hubbard and others. The rapidity of movement was probably responsible, as structurally little similarity to Corrodentia seems to exist. The presence of cerci, the situation of the antennæ near the base of the mandibles and especially the general appearance show a wide divergence from the psocid type but a near relationship to termites.

NEW NEARCTIC CRANE-FLIES (TIPULIDÆ, DIPTERA). PART VI.

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Dicranomyia rhipidioides, new species.

Antennæ black, moniliform; general coloration brownish yellow, the præscutum with three dark brown stripes; wings grayish with sparse brown spots and subhyaline drops; *Sc* short, cell *1st M*² closed, elongate.

Male.—Length about 5.2 mm.; wing 6.9 mm.

Rostrum and palpi dark brown. Antennæ black, the flagellar segments moniliform, subglobular. Head dark.

Thorax pale brownish yellow, the præscutum with three dark brown stripes, of which the median stripe is very broad, the lateral stripes narrow, continued backward so as to suffuse the scutal lobes; postnotum darker. Pleura light yellowish brown. Halteres

*Id, vol. X, p. 120 (1916.)
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short, pale. Legs with the coxæ pale yellowish brown; trochanters and femora dull yellow, the tips of the latter narrowly dark brown; tibiæ yellowish brown, passing into dark brown at about mid-length; tarsi brown. Wings strongly tinged with gray, sparsely marked with brown and subhyaline; small brown spots and seams at the arculus, origin of the sector, along the cord, and the outer end of cell *1st M*²; stigma pale, rectangular; subhyaline drops as follows: before and beyond the stigma; end of cell *R*⁵; cell *1st M*²; a few small droplets in cells *M*, *Cu*, and *1st A*. Venation: *Sc* short, ending opposite the origin of the sector; *Sc*¹ slightly retracted from the tip of *Sc*¹; *Rs* long, strongly arcuated at origin, about twice the length of the deflection of *R*⁴⁺⁵; *r* at the tip of *R*¹; cell *1st M*² very long, closed; outer deflection of *M*³ about twice the length of *m*; *M*³ beyond *m* but little longer than that portion of the vein before *m*; basal deflection of *Cu*¹ just beyond the fork of *M*.

Abdominal tergites dark brown, the caudal margins of the segments pale; sternites pale brown. Hypopygium with the pleurites long and slender, about twice the length of the appendages; ventral pleural appendage terminating in a slightly curved cylindrical point.

Habitat.—California.

Holotype.—♂, Alameda, Cal., May 26, 1915, (M. C. Van Duzee).

This fly bears a superficial resemblance to *Rhipidia fidelis* O. S., but may readily be distinguished by the structural details.

Erioptera (Erioptera) pilipennis, new species.

Related to *E. laticeps* Alex.; wings with a sparse pubescence in the apical cells.

Female.—Length 3.2 mm.; wing 5 mm.

Rostrum, palpi and antennæ black. Head dark gray.

Thorax dark gray, the pleura a little brighter. Halteres pale. Legs with the coxæ and trochanters brownish yellow; femora dark brown, more yellowish basally; tibiæ and tarsi dark. Wings grayish; veins dark brown; a distinct though sparse pubescence in the centres of the apical cells from *R*² to *Cu*¹, inclusive. Venation: almost as in *E. laticeps* but *Rs* longer; *R*²⁺³ longer; *r*

inserted farther out on R^2 and closer to the tip of R^1 ; Cu^1 at the fork of M .

Abdomen dark gray; ovipositor horn-coloured.

Habitat.—Oregon.

Holotype.—♀, Hood River, Oregon, June 2, 1917, (F. R. Cole).

In our fauna this species resembles *E. laticeps*, from which it is readily separated by the sparsely pubescent wings, the venation and the coloration of the abdomen.

Erioptera (Mesocyphona) needhami, new species.

Related to *E. dulcis* O. S.; coloration pale grayish yellow, the mesonotum with four separated brownish stripes; legs white with a brown ring before the tips of the femora; tip of the tibiae not darkened.

Length 4-4.2 mm.; wing 3.8-4 mm.

Rostrum and palpi dark brown. Antennae yellow, the terminal segments of the flagellum a little darker. Head pale.

Thorax pale grayish yellow, the præscutum with four narrow, dark brown stripes, the median pair widely separated from one another, lying outside the tuberculate pits; lateral stripes on the margin of the sclerite. Pleura with two narrow, dark brown stripes enclosing a broad, silvery stripe; sternites silvery. Halteres pale, knobs brown. Legs with a broad, dark brown ring before the tips of the femora; remainder of the legs white excepting the slightly darkened last two tarsal segments. Wings grayish brown, dark brown on the anterior half, fading into grayish on the posterior half; a few large, whitish spots on the surface including the arculus, origin of R_s , Sc^2 , Sc^1 , R^1 , R^2 , along the cord and smaller spots near the tips of the other longitudinal veins.

Abdomen yellow, the segments marked with brown; hypopygium yellow; sternites with an interrupted dark brown lateral stripe and a less distinct but broader, pale brown median stripe.

Habitat.—Eastern United States.

Holotype.—♂, Sacandaga Park, Fulton Co., N.Y., June 17; 1910.

Allotype.—♀, with the type.

Paratopotypes.—Abundant specimens of both sexes.

This species is related to *E. dulcis* O.S. (Western United States) but is much paler, the legs white and completely lacking the dark tibial tips of *dulcis*. The fly is very common throughout the Eastern States. My distribution sheets indicate a wide distribution (Maine, Vermont, Connecticut, New York, Pennsylvania, New Jersey, Maryland, Virginia and North Carolina). The fly has hitherto been determined as *dulcis* by Mr. Johnson and the writer, but comparison with authentic specimens of *dulcis* show that it requires a new name, and I take great pleasure in dedicating the form to Dr. James G. Needham.

Gonomyia (Gonomyia) spinifer, new species.

Related to *G. cognatella* O.S.; thoracic pleura with a broad, dark brown stripe; abdominal tergites dark brown, tipped with yellowish; sternites yellow; male hypopygium with the ventral pleural lobes elongate, on the dorsal face before the tip with a sharp spine.

Male.—Length 3.8–4 mm.; wing 4.9–5 mm.

Female.—Length 3.8 mm.; wing 4.8 mm.

Rostrum and palpi dark brown. Antennæ with the scape light yellow, the flagellum dark brown. Head yellow.

Thorax yellow, the præscutum with three broad, brown stripes that are confluent behind. Pleura yellow with a rather broad, dark brown stripe extending from the cervical sclerites to the base of the abdomen and including the halteres; sternites dusky. Halteres pale. Legs dull yellow, the tips of the femora and tibiæ and the terminal tarsal segments a little darker. Wings pale gray; stigma indistinct, pale brown; veins dark brown. Venation: *Sc* short ending far before the origin of *Rs*, this distance a little longer than *r-m*; *R*²⁺³ arcuated, a little longer than the sector; veins *R*² and *R*³ divergent at the wing-tip; cell *1st M*² open by the atrophy of *M*²; basal deflection of *Cu**1* before, at or just beyond the fork of *M*.

Abdominal tergites dark brown, the caudal-lateral angles of the segments yellowish; hypopygium yellowish; sternites light

yellow. Male hypopygium with the ventral pleural lobe elongate, fleshy, projecting far beyond the other appendages, on its dorsal face before the tip with a sharp, dark-coloured spine. Penis-guard narrow subtended on either side by a sharp, curved chitinized hook whose points are directed ventrad; these hooks are unequal in size, one being much smaller and feebler than the other; at its apex the guard ends in a slender dorsally curved hook. Female ovipositor with the valves long and straight.

Habitat.—California.

Holotype.—♂, Los Cerritos, Cal., March 19, 1915, (M. C. Van Duzee).

Allotype.—♀, with the type, March 14.

Paratopotypes.—2 ♂'s.

Tipula entomophthoræ, new species.

Mesonotal præscutum gray with three brown stripes; wings gray with a broad cross-band of white beyond the cord; vein R^2 persistent for its entire length; male hypopygium having the ninth tergite deeply notched medially, the lateral angles obliquely truncated.

Male.—Length about 18 mm.; wing 15.8 mm.

Frontal prolongation of the head elongate, yellow above, dark brown beneath and on the sides. Antennæ with the three basal segments brownish yellow, the remainder of the flagellum dark brown. Head gray with an indistinct, median brown line.

Thoracic pronotum gray, narrowly brown medially. Mesonotal præscutum light gray with three dark brown stripes that are centred with gray, the median stripe narrowed behind. Pseudosutural foveæ prominent. Scutum with two brown marks on each lobe; median lobe of the scutum and scutellum with a very narrow, brown line; postnotum yellowish brown. Pleura clear gray. Legs with the femora dull yellow, the bases brighter, the tips more infuscated; tibiæ and tarsi dark brown. Halteres broken. Wings brown, gray and whitish, cross-banded. A dark area at the arculus and cross-vein h , another at the origin of the sector, a large area at the stigma continued down to cell *1st M*²;

apex of the wing brown including the apical half of cells R^2 and R^3 , the apical two-thirds of cell R^5 and all of cells M^2 and $2nd\ M^2$; remainder of the wing grayish brown with a large, white cross-band beyond the stigma extending clear across the wing except the apex of cell M^3 ; a broad cross-band before the stigma and beyond the origin of the sector extending into cell M ; a large white blotch in the base of M and the basal half of cells Cu and $1st\ A$. Venation: R^2 persistent for its entire length; petiole of cell M^1 short, a little longer than m ; $m-cu$ short but evident.

Abdomen dull yellow, the tergites and sternites with a broad, median brown line. Pleural region and sides of the sternites brownish. Hypopygium brown. Male hypopygium with the ninth tergite large, sub-quadrate, the caudal margin with a deep U-shaped notch, this latter medially with a still smaller but similar notch; lateral angles obliquely truncated. Ninth pleurite complete, large, the ventral portion with dense long setæ; outer pleural appendage narrow at base, expanded into a flattened blade which is covered with numerous long stiff setæ; inner pleural appendage terminating behind in a scoop-like lobe that is two-toothed, the inner tooth longest and acutely chitinized, the convex lower surface with long, pale hairs; anteriorly the blade is white, very flattened, the outer edge heavily chitinized, jet-black, the tips expanded, in a position of rest lying beneath the ninth tergite. Ninth sternite with a deep, median notch behind which is a membranaceous area; margin of the sternite adjoining the pleurite setigerous, the posterior portions smooth.

Habitat.—North Carolina.

Holotype.—♂, Cranberry, N. Car. (Roland Thaxter.)

Paratopotype.—♂, in the author's collection.

This species is related to *T. angulata* Lw, *T. penobscot* Alex., *T. subfasciata* Lw., etc., but is separated from all by the structure of the male hypopygium and from the last two species by the complete vein R^2 . The material was heavily infested with the type-material of *Entomophthora caroliniana* Thaxter. The type and two additional specimens have been placed in the M.C.Z. collection by Dr. Thaxter.

(To be continued)